



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**

**Evaluating City Governments' Performance on  
Facilitating Business Innovation in China:  
Evidence from the Lien Chinese Cities Service-oriented  
Government Survey**

**Presenter: Meng, Yu**

**Public Policy and Global Affairs Program  
The School of Humanities and Social Sciences  
Nanyang Technology University, Singapore**

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# Outline

- Background and important concepts
- Research question
- Data
- Analytical results
- Tentative conclusions
- Limitations and future work

# Background:

## Innovation and Its Role

- Knowledge-based economy: Innovation-driven
- Definition of innovation
  - New (Schumpeter 1934, 1943)
  - Combined with better performance or efficiency (Komninos 2008)
- How to achieve innovative capacities
  - Old notion: entrepreneurship of firms (Schumpeter 1934, 1943; Cantwell 1989; among many others)
  - New notion: innovation system (Jaffe 1986, 1989; Nelson and Winter 1982; Freeman 1987; Nelson and Rosenberg 1993)
    - Innovation is affected by factors outside a business
    - Spillovers from public R&D are important
    - The size of population and the geographical agglomeration of universities and industries also matter

# Background:

## The Context of China

- The transition of public administration
  - Building service-oriented government
- Service-oriented government (Wu et al 2012)
  - Goal: serve the society consisting of citizens and social organizations
  - Function: providing effective public services and quality public goods
- The focus on cities
  - The importance of cities
    - Major source of economic outcomes (>70% GDP; >80% tax revenue)
    - Key locations for national innovative capacity building and S&T spillovers (>90% universities & research institutes)
    - Models for PA transformation
  - Actual efforts on urbanization in China
    - The rate of urbanization exceeded 50% in 2012

# Research Question

Put together the new trends

- Innovation-driven global competition
- The emerging service-oriented government in China
- The critical position of cities in both the competition and the PA transformation

to inquire:

*Do city governments provide quality services to facilitate local business innovation?*

# Data: Sources

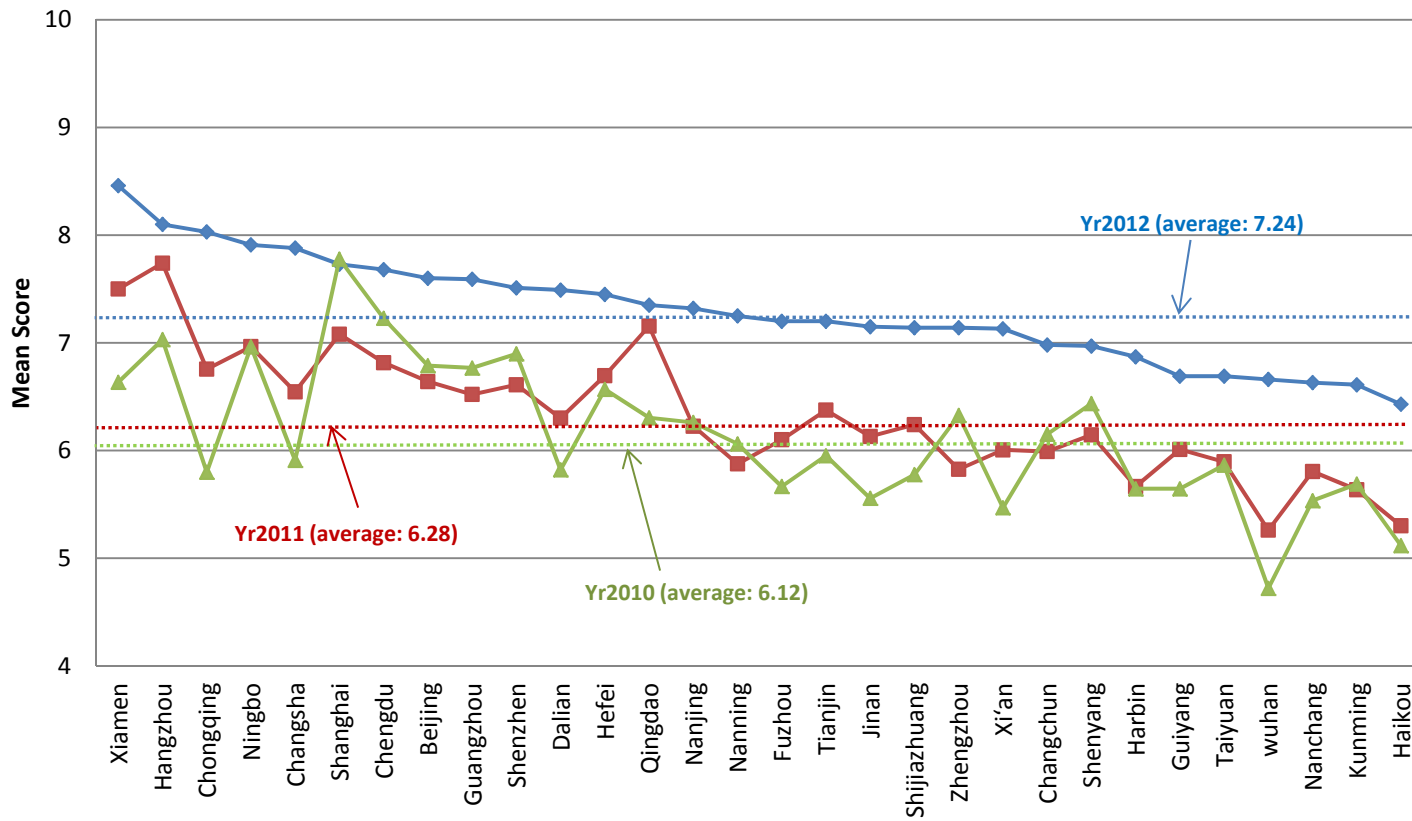
- Panel data from Lien Survey
  - 30+ cities surveyed annually in 2010-12
  - Around 700 and 100 valid responses from residents enterprises were collected respectively in each city
  - Business survey (~20 questions)
    - Overall satisfaction
    - Business environment
    - Business participation in policymaking & implementation
    - Government effectiveness
- Government official statistics
  - City government annual reports
  - China city statistical yearbooks
  - National Statistics of the 2009 R&D Census

# Data: Key Variables

- Innovation outcome
  - Technology contract turnover (its share in local GDP)
- The quality of public services that may promote innovative business environment and innovation outcomes (10-point scale)
  - Overall infrastructure
  - Taxation
  - Protection of intellectual property rights (IPR)
  - Access to financial resources
  - Legal guarantee of performance of contract
- The direct support from government on innovation (1 yr lag)
  - The R&D expenditure (its share in local GDP)

# Data: The Quality of Public Services

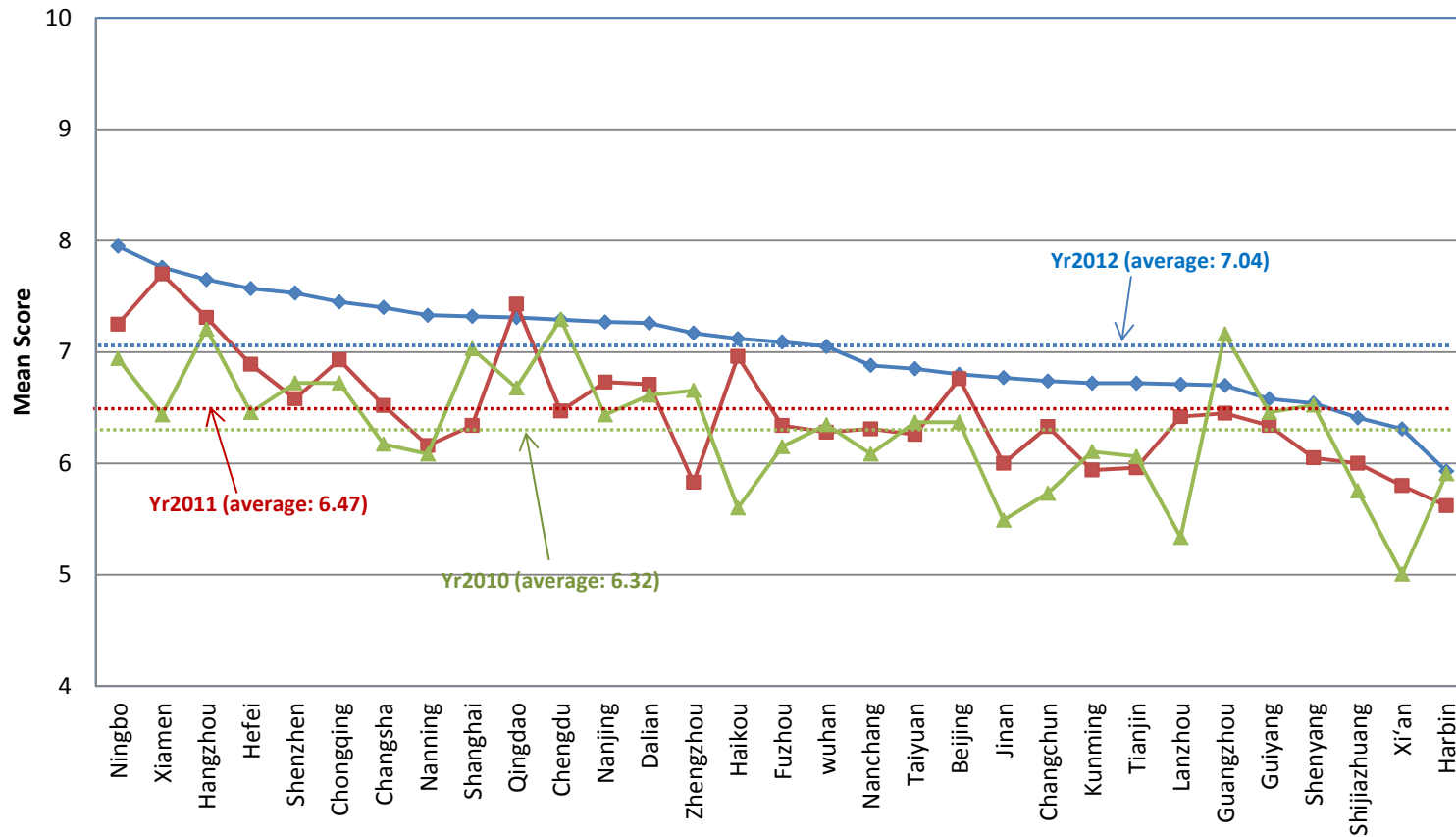
## Overall Infrastructure





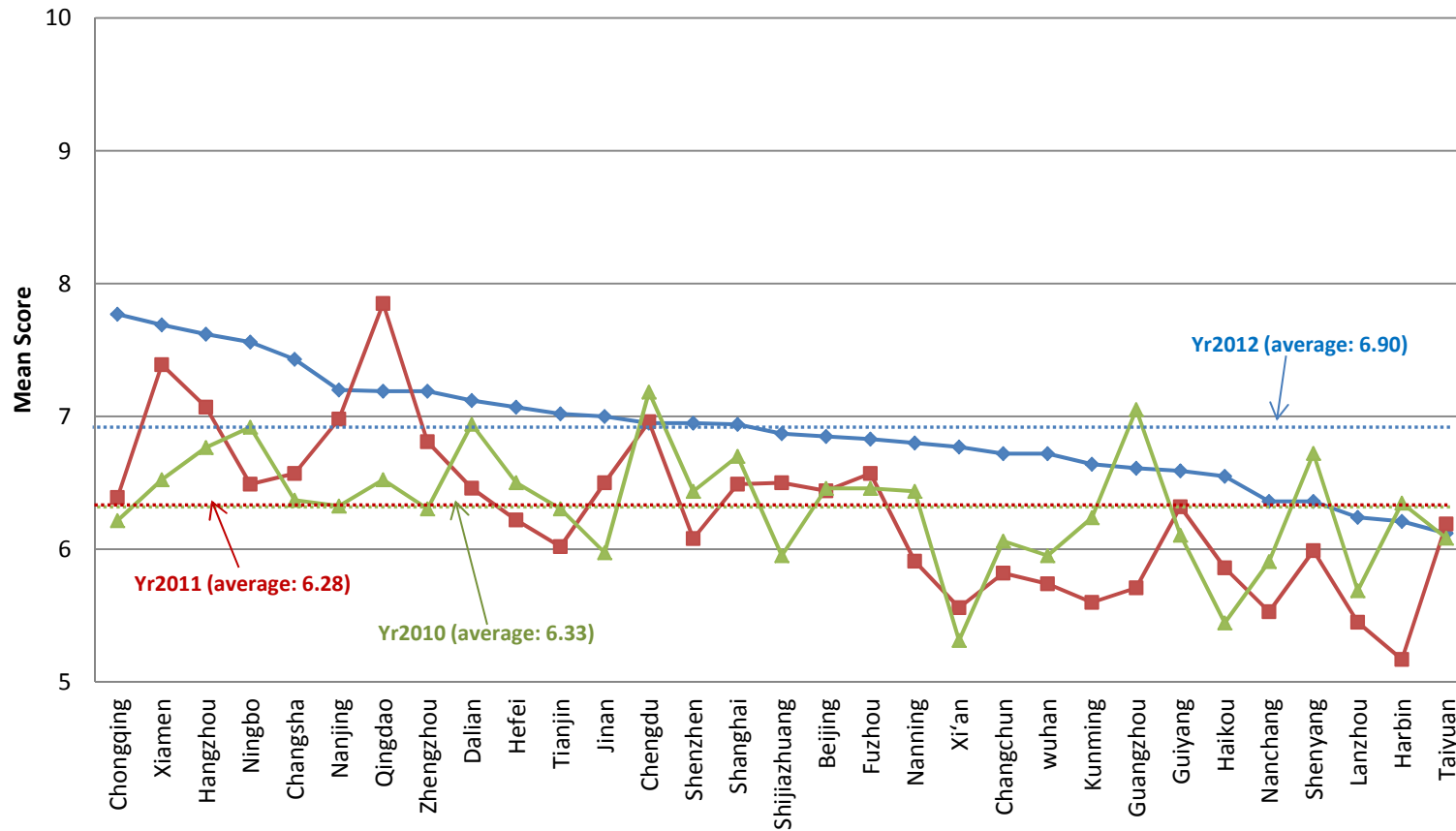
# Data: The Quality of Public Services

## Taxation



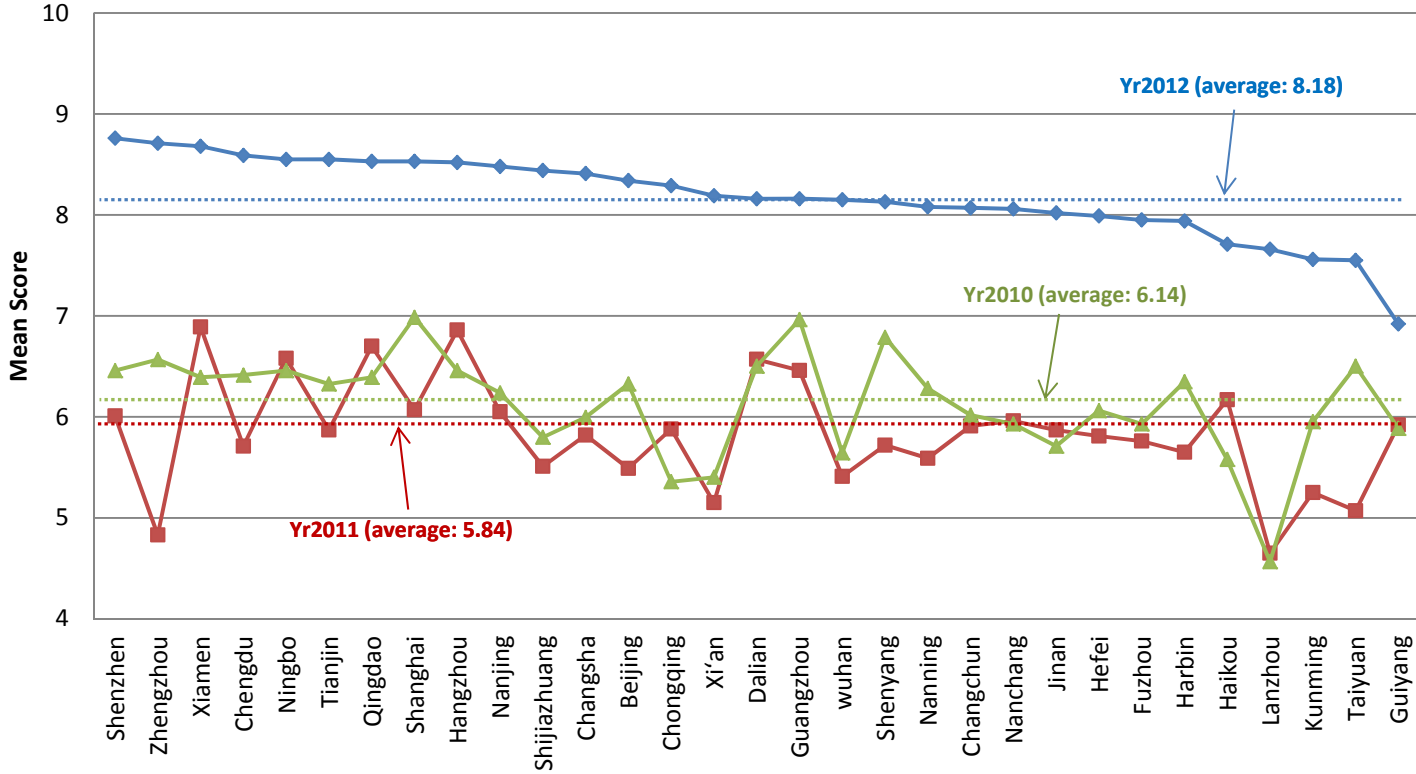
# Data: The Quality of Public Services

## Protection of Intellectual Property Right (IPR)



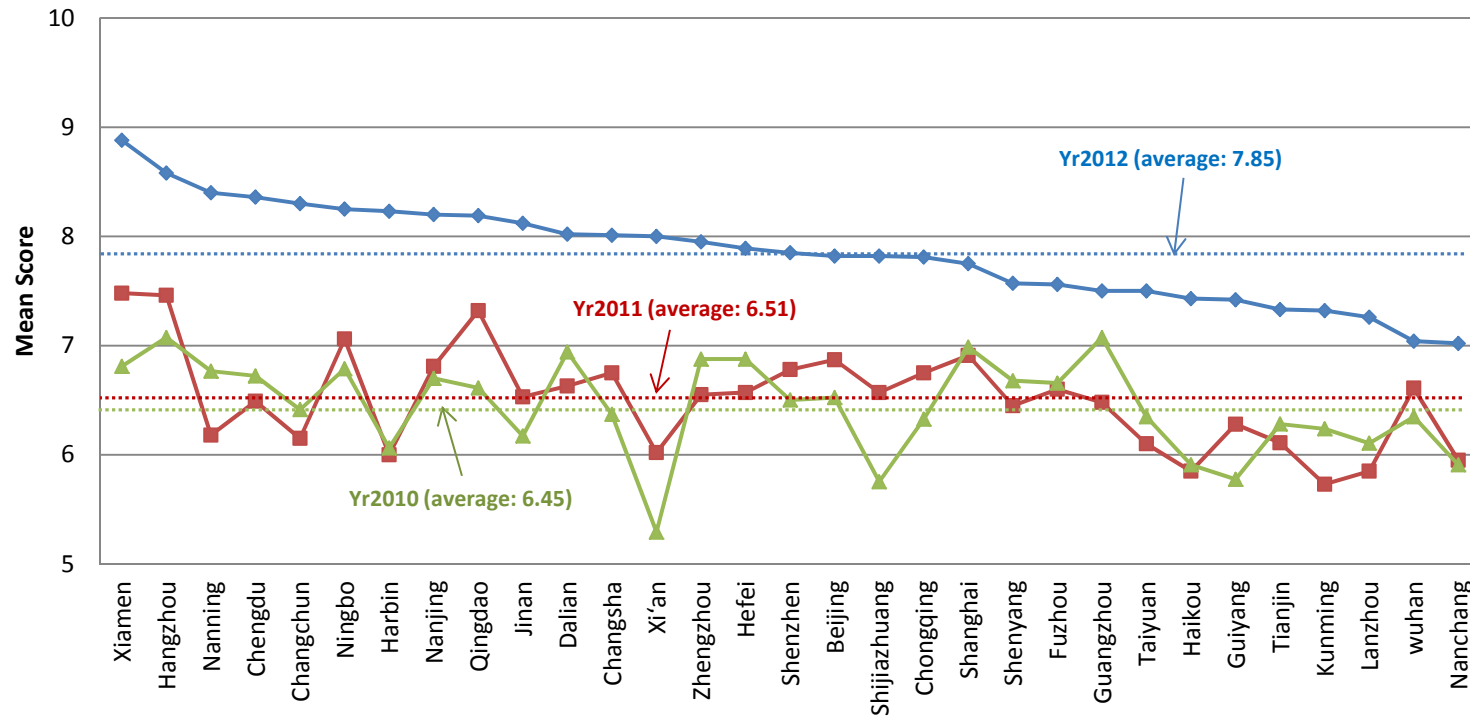
# Data: The Quality of Public Services

## Access to Financial Resources



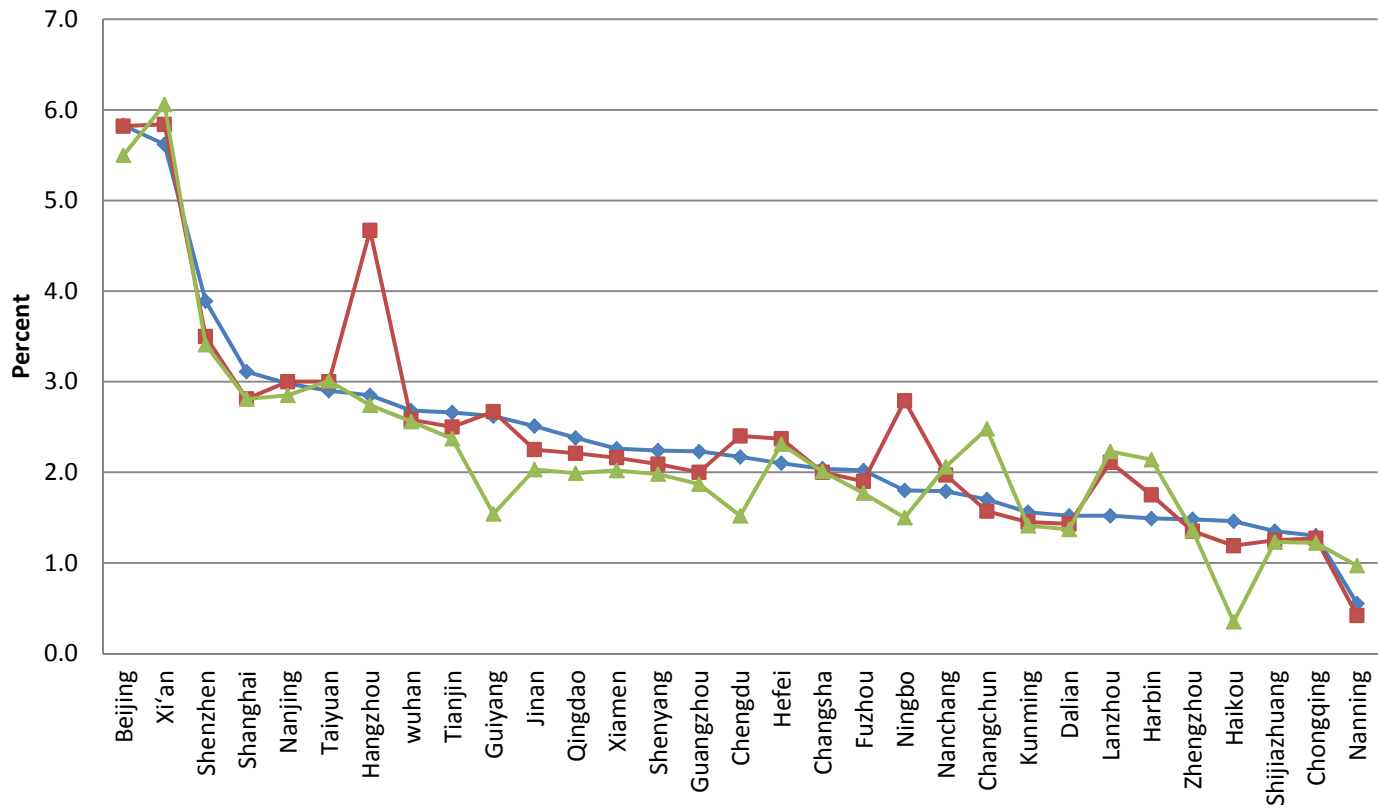
# Data: The Quality of Public Services

## Legal Guarantee of Performance of Contract



# Data: Direct Support from Government

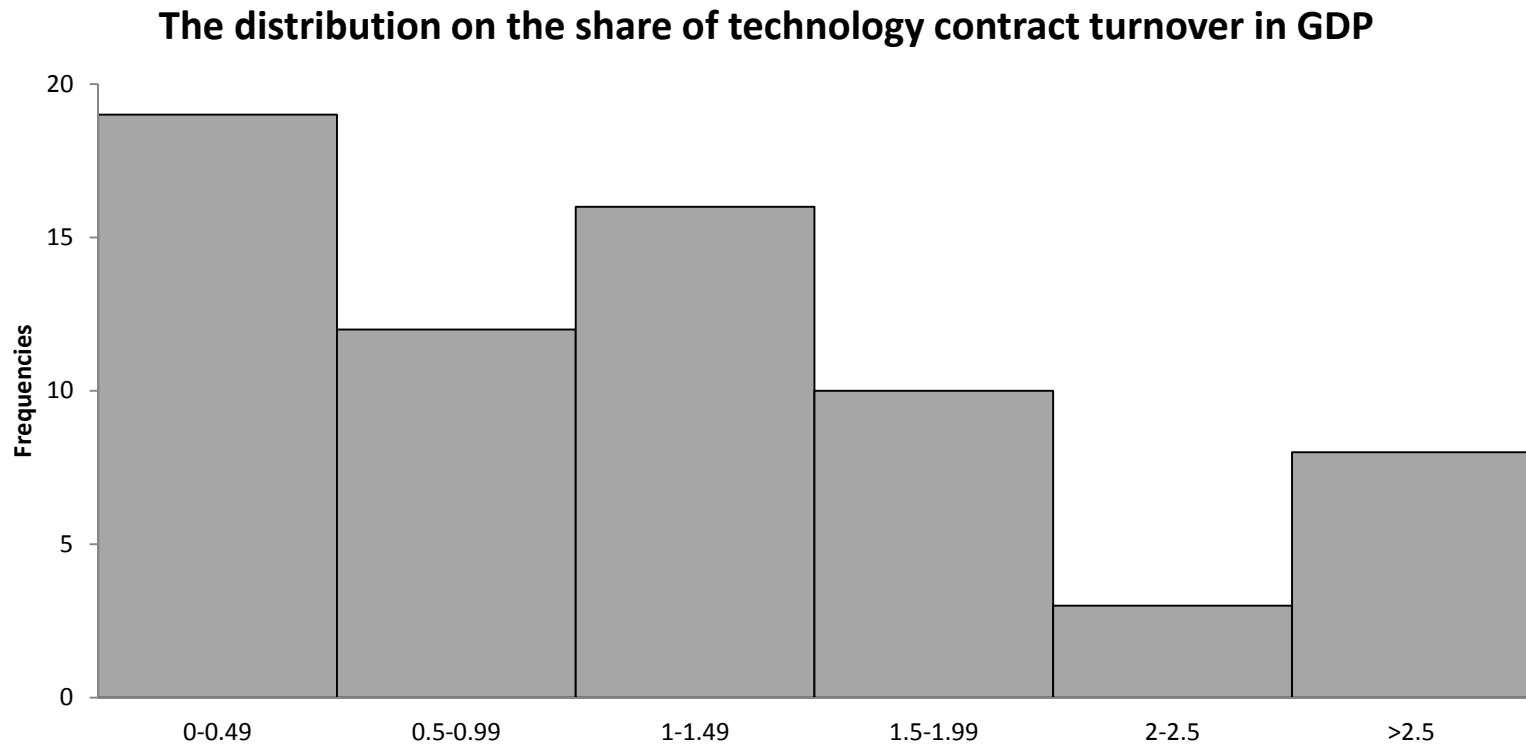
## The Share of R&D Expenditure in GDP



# Data: Technology Contract Turnover (CNY100m)

	2012	2011	2010
Beijing	2458.5	1890.3	1579.5
Changchun	X	21.05	17.2
Changsha	19.85	15.37	23.54
Chengdu	X	X	48.22
Chongqing	223.5	X	147.53
Dalian	131	105.8	X
Fuzhou	12.65	14.38	X
Guangzhou	X	159.52	136.8
Guiyang	X	X	X
Haikou	X	X	X
Hangzhou	X	43.37	41.73
Harbin	64.2	57.6	50.93
Hefei	42.3	33.42	29.78
Jinan	32.9	27.4	21.1
Kunming	X	X	X
Lanzhou	X	16.86	X
Nanchang	14.5	12	10.1
Nanjing	145.38	120.27	76.89
Nanning	1.59	X	X
Ningbo	10.64	10.9	9.82
Qingdao	34.17	20.75	16.01
Shanghai	588.52	550.32	525.45
Shenyang	X	81	73.9
Shenzhen	X	111.27	X
Shijiazhuang	10.7	9.6	7.6
Taiyuan	12.3	10.09	7.65
Tianjin	172.11	113.99	119.79
wuhan	169.69	107.51	88.87
Xi'an	303.75	204.59	57.3
Xiamen	59.28	38.71	X
Zhengzhou	65.1	50	43

# Data: Innovation Outcome



# Analysis: Correlations

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	1	2	3	4	5	6	7
1. The share of technology contract turnover in GDP	1.000						
2. Overall infrastructure	0.148	1.000					
3. Taxation	-0.025	0.783	1.000				
4. Protection of IPR	0.008	0.815	0.791	1.000			
5. Access to financial resources	0.053	0.792	0.652	0.680	1.000		
6. Legal gurantee of performance of contract	0.080	0.847	0.743	0.779	0.876	1.000	
7.The share of R&D expenditure in GDP	<b>0.725</b>	0.036	-0.160	-0.151	-0.075	-0.079	1.000

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# Analysis: Multivariate Regressions

OLS Regression on the share of technology contract turnover in local GDP

	Model 1	Model 2
<b>Overall infrastructure</b>	1.95*	0.11
	(0.90)	(0.68)
<b>Taxation</b>	-1.23	-0.25
	(0.92)	(0.67)
<b>Protection of IPR</b>	-0.94	0.2
	(1.03)	(0.75)
<b>Access to financial resources</b>	-0.45	-0.14
	(0.58)	(0.41)
<b>Legal guarantee of performance of contract</b>	0.46	0.57
	(1.03)	(0.74)
<b>The share of R&amp;D expenditure in GDP</b>		1.55***
		(0.20)
<b>Constant</b>	2.98	-5.58
	(3.89)	(2.98)
<b>Obs.</b>	68	68
<b>R<sup>2</sup></b>	0.094	0.547

# Tentative Conclusions

- Direct R&D expenditure is strongly and positively associated with technology contract turnover
- Business environment relevant public services provided by local governments seem to have weak relationship with innovation outcomes.

# Limitations and Future Work

- Limitations
  - Small sample
  - Only quantitative data
  - Simple model
- Directions for future work
  - Refine the questionnaire
  - Collect qualitative data
    - Search of meaning
    - Specifications for model-building

**Thank You!**